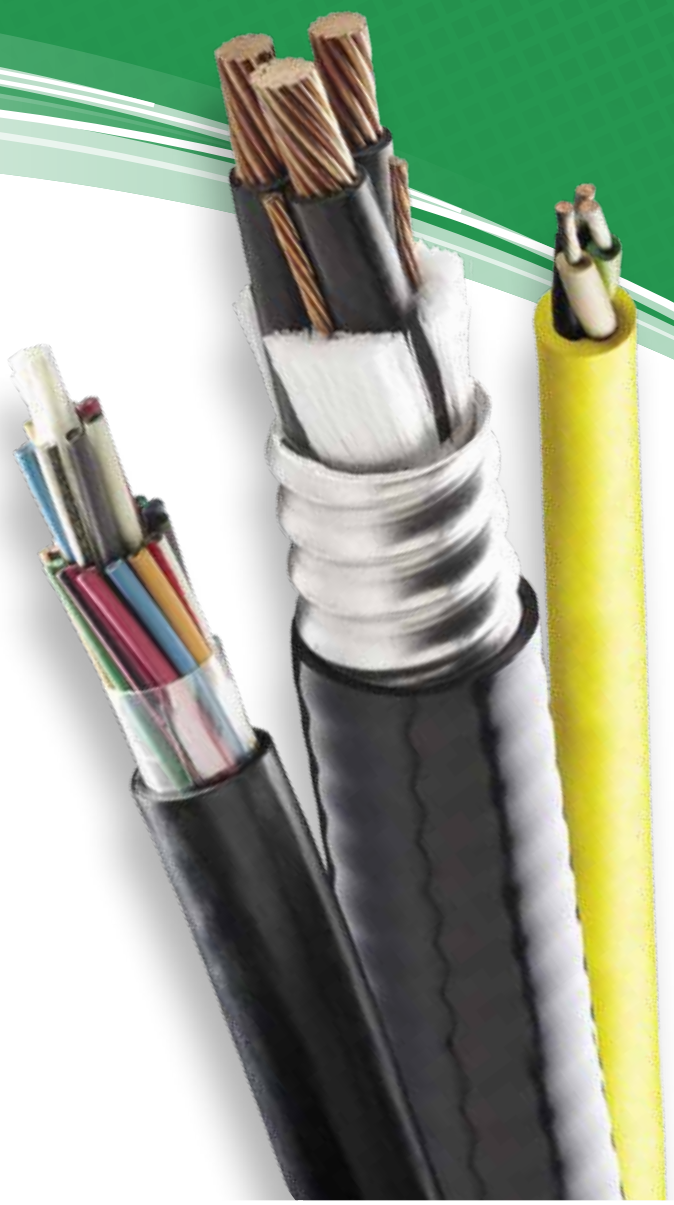
Cable Selection Guide for Hazardous Locations



General Cable's extensive cable portfolio covers all applications within Hazardous Locations, and all are designed to ensure optimal production uptime and compliance with the applicable safety standards for such environments.

TYPE MC-HL OR ITC-HL
CCW® Continuously Corrugated Welded Cables

TYPE TC-ER-HL
MOR® Polyrad® XT-125 Cables

EXTRA HARD USAGE
Carol® Brand Carolprene®, Super Vu-Tron®, Super Vu-Tron Supreme and Super Vu-Tron III Flexible Cords

General Cable

When it comes to specifying cables that can handle extreme conditions in Hazardous Locations, General Cable is your one-source cable provider.

Hazardous (Classified) Locations (HL) are defined as areas where fire or explosion hazards may exist due to the presence of flammable gases, vapors, dusts or fibers/flyings. The 2014 National Electrical Code (NEC) - NFPA 70 categorizes these locations by Classes, Divisions and Zones and imposes strict requirements for wiring methods in these locations.

The permissible wiring methods are selected by the Code-Making Panel, with safety being the most critical consideration. Along with rigid metal conduit, there are a number of cable types which are approved for use in these Hazardous Locations. The various cable types in conjunction with the appropriate terminations must provide a system that significantly limits or completely eliminates the possibility of an electrical arc or spark igniting the surrounding flammable gases, vapors, dusts or fibers.

The approved cable types range from extremely rigid and impermeable mineral-insulated, metal-sheathed Type MI cables and MC-HL and ITC-HL cables with gas/vapor-tight continuous corrugated metallic sheaths to unarmored, highly flexible Type TC-ER-HL cables and flexible cords.

Whatever your HL application requires, General Cable's broad portfolio of Hazardous Location cables has you covered.

MC-HL or ITC-HL Listed

General Cable's **CCW® Continuously Corrugated Welded Cables** for Hazardous Locations carry either Type MC-HL or ITC-HL listing in a complete line of products from 300 volt instrumentation through 35 kV power cables.

CCW is a preferred wiring method for the refining industry, providing a lower installed cost over rigid metal conduit and offering superior crush and impact resistance via the gas- and vapor-tight continuously corrugated welded aluminum armor.

- Cables listed as Type MC-HL are permitted for use in all Classes, Divisions and Zones per NEC Articles 501, 502, 503, 504 & 505.
- Cables listed as Type ITC-HL are permitted for use in Class I and III, Divisions 1 and 2; Class II, Division 2; or Class I, Zones 1 and 2 locations per NEC Articles 501, 502, 503 & 505.
- For Division 1 and Zone 1 locations, both Type MC-HL and ITC-HL must be installed where public access is restricted and the conditions of maintenance and supervision ensure that only qualified persons service the installation.
- For all Type MC-HL and ITC-HL installations, cables must be terminated with fittings listed for the particular Hazardous Location.

Type TC-ER-HL Listed

For Hazardous Location applications requiring flexibility, General Cable's **MOR® Polyrad® XT-125 Cables** with Type TC-ER-HL listing provide maximum flexibility while meeting the same crush and impact resistance requirements of an armored cable per UL 2225. MOR Polyrad XT-125 cables with Type TC-ER-HL listing utilize a 125°C-rated irradiated cross-linked Polyolefin insulation and a Mud Oil-Resistant (MOR) jacket and are available in 600 V unarmored multi-conductor power and control cables and 600 V multi-pair and multi-triad signal cables.

- Cables with Type TC-ER-HL listing are permitted for use in Class I, Divisions 1 and 2, Zones 1 and 2 locations per NEC Articles 501, 502, 503 & 505.
- For Class I, Division 1 and Zone 1 locations, Type TC-ER-HL cable* must be installed only where necessary to employ flexible connections, must be protected from physical damage, where public access is restricted, and the conditions of maintenance and supervision ensure that only qualified persons service the installation.
  *Type TC-ER-HL – 600 V nominal or less, 3 conductors or more and O.D. of 1.00" or less
- For all Type TC-ER-HL installations, cables must be terminated with fittings listed for the particular Hazardous Location.

Extra Hard Usage Approved

For flexible applications requiring larger gauge (AWG) sizes (cables with an overall O.D. > 1.0"), General Cable offers **Carol® Brand Carolprene®, Super Vu-Tron®, Super Vu-Tron Supreme and Super Vu-Tron III Flexible Cords** approved for extra hard usage per NEC Article 400, Table 400.4 in 600 V or 2000 V single and multi-conductor constructions.

- Flexible cords listed as a Type approved for "extra hard usage" are permitted for use in all Classes, Divisions and Zones per NEC Articles 501, 502, 503, 504 & 505.
- For all locations, usage is limited to only where it is necessary to employ flexible connections, the cable is protected by location or suitable guard, public access is restricted, and the cable is terminated with cord connectors listed for the particular Hazardous Location.
- Flexible cords in Hazardous Locations must also be of a continuous length (no splices).

Cable Selection Guide for Hazardous Locations (see back cover)

To assist in navigating the complex wiring method requirements for Hazardous (Classified) Locations per NEC Articles 501 – 505, General Cable has created a "Cable Selection Guide for Hazardous Locations". The selection guide highlights the basic application requirements, including the Hazardous Location classifications, industry compliances and listings, performance features, and temperature ratings of General Cable's various Hazardous Location cable products. This information should be used as a guide only.

For specific questions regarding these products, or for more information, contact your General Cable sales representative, e-mail info@generalcable.com or access any of General Cable's catalogs at www.generalcable.com (click on Catalogs).

General Cable
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Cable Selection Guide for Hazardous Locations

		CCW® Continuously Corrugated Welded										MOR® Polyrad® XT-125				Carol® Brand Portable Cord			
		300 V Arctic Armor Category 5e	300 V Arctic Armor PROFIBUS	300 V Armored Instrumentation, Pairs/Triads, IS-OS	600 V Arctic Armor Fieldbus	600 V Armored Instrumentation, Pairs/Triads, IS-OS	600 V Armored Power, VFD	1000 V Armored Power RA90, VFD	2000 V Armored Power, VFD	2.4 kV Armored Power, Non-Shielded, VFD	5 kV - 35 kV Armored Medium-Voltage Power, Shielded, VFD	600 V Flexible Unarmored Multi-Conductor Control	600 V Flexible Unarmored Multi-Conductor Power	600 V Flexible Unarmored Paired Signal, IS-OS	600 V Flexible Unarmored Triad Signal, IS-OS	600 V Carolprene®; Super Vu-Tron® Jacketed Type SOOW	600 V Super Vu-Tron Supreme; Super Vu-Tron III Type SOOW	2000 V Super Vu-Tron Types G and G-GC Round	2000 V Super Vu-Tron Single and Multi-Conductor Type W and Type W Extra Flex
Class I	Division 1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Class I	Division 2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Class II	Division 1				x	x	x	x	x	x	x					x	x	x	x
Class II	Division 2	x	x	x	x	x	x	x	x	x	x					x	x	x	x
Zone	1	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Zone	2	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Industry Compliances / Listings	ABS Listed Type CWCMC	x	x	x	x	x	x	x	x	x	x								
Industry Compliances / Listings	API-RP14F											x	x	x	x				
Industry Compliances / Listings	CSA C22.2 No. 245 Type X110											x	x	x	x				
Industry Compliances / Listings	CSA Type G, G-GC																	x	
Industry Compliances / Listings	CSA Type RA90							x											
Industry Compliances / Listings	CSA Type RW90							x					x	x					
Industry Compliances / Listings	CSA Type SOOW															x	x		
Industry Compliances / Listings	CSA Type TC												x	x	x				
Industry Compliances / Listings	CSA Type W																		x
Industry Compliances / Listings	IEC 60092-350											x	x	x	x				
Industry Compliances / Listings	IEEE 1580-2010 Type P											x	x	x	x				
Industry Compliances / Listings	MSHA Approved															x	x	x	x
Industry Compliances / Listings	UL 1072 Type MV-105										x								
Industry Compliances / Listings	UL 1072 Type MV-90									x									
Industry Compliances / Listings	UL 13 Type PLTC			x						x									
Industry Compliances / Listings	UL 1309 Type X110												x	x	x				
Industry Compliances / Listings	UL 1650 Type G, G-GC																	x	
Industry Compliances / Listings	UL 1650 Type W																		x
Industry Compliances / Listings	UL 2225 Type ITC-HL	x	x	x															
Industry Compliances / Listings	UL 2225 Type MC-HL				x	x	x		x	x	x								
Industry Compliances / Listings	UL 2225 Type TC-ER-HL											x	x	x	x				
Industry Compliances / Listings	UL 62 Type SOOW															x	x		
Industry Compliances / Listings	UL Listed 110ºC Marine Shipboard Cable			x		x	x		x	x	x	x	x	x	x				
Performance Features	- 55°C Cold Bend	x	x	x*	x	x*	x*				x*	x	x	x	x				
Performance Features	Armored	x	x	x	x	x	x	x	x	x	x								
Performance Features	Cable Tray Use	x	x	x		x	x		x	x	x	x	x	x	x				
Performance Features	Direct Burial	x	x	x	x	x	x		x	x	x	x	x	x	x				
Performance Features	Flame Retardant	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Performance Features	Flexible Cable											x	x	x	x	x	x	x	x
Performance Features	Flexible Stranding											x	x	x	x	x	x	x	x
Performance Features	Jacket Low Temp Brittleness of -60°C	x	x	x*	x	x*	x*				x*								
Performance Features	Meets UL 2225 Crush and Impact Resistance	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
Performance Features	Mud Oil-Resistant											x	x	x	x				
Performance Features	Oil-Resistant	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Performance Features	Sunlight-Resistant	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Temp Rating	- 40°C	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Temp Rating	90°C	x	x	x	x	x	x	x	x	x						x		x	x
Temp Rating	105°C			x							x						x		
Temp Rating	110°C											x	x	x	x				
Temp Rating	125°C (UL & CSA listed 110°C, rated for 125°C)											x	x	x	x				

* Available on Arctic Armor CCW® Constructions

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